

Sphaeridium discolor D'ORCHYMONT (Coleoptera, Hydrophilidae)
Newly Recorded from Japan and Indonesia

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Abstract *Sphaeridium discolor* D'ORCHYMONT is reported from Japan and Indonesia for the first time. A redescription of the species and a key to the Japanese species of the genus are given. *Sphaeridium dimidiatum* previously reported from the Nansei Islands has probably been misidentified; it should be identified with *S. discolor*.

Key words: *Sphaeridium discolor*, *Sphaeridium dimidiatum*, Nansei Islands, Japan

The genus *Sphaeridium* FABRICIUS, 1775 is widespread throughout the world, and 43 species have been described thus far. The area most abundant in the species of this genus is the Afrotropical Region, where 25 species are known to exist. The most sparsely populated area is the Neotropical Region, where only one species is known to exist. In Japan, three species were reported (SATÔ, 1960, 1985; NAKANE, 1970; HANSEN, 1999); these include *S. dimidiatum* GORY, 1834, and *S. quinque maculatum* FABRICIUS, 1798, which are widespread in the Oriental Region and occur in the Nansei Islands, and *S. scarabaeoides* (LINNÉ, 1758), which is widespread in the Palearctic Region and occurs in Hokkaido and Honshu.

The distinct characteristics distinguishing *S. dimidiatum* and *S. discolor* D'ORCHYMONT, 1933 from other species occurring in Taiwan and Japan are the truncate posterior angle of pronotum and the subparallel scutellum. Two other species from Japan and Taiwan show round angles of the pronotum and a triangular scutellum. In the course of studying the specimens of *Sphaeridium* deposited in the Hokkaido University Museum, we found 37 specimens from Taiwan, 40 specimens from the Nansei Islands of Japan, and 12 specimens from Indonesia. These specimens have the following characteristics: posterior portion of pronotum widely cut; scutellum somewhat elliptic (figured by D'ORCHYMONT, 1913); suture of elytra deeply impressed and continuing to

Table 1. Comparison of characteristics between *Sphaeridium discolor* and *S. dimidiatum*. See also D'ORCHYMONT, 1933, 299.

<i>S. discolor</i>	<i>S. dimidiatum</i>
1. Posterior angle of pronotum long truncate.	1. Posterior angle of pronotum short truncate.
2. Anterior trochanter with setae as strong as those of pro- and mesosterna.	2. Anterior trochanter with hair-like setae, less strong than those of pro- and mesosterna.
3. Anterior claw of male not sharp anteriorly.	3. Anterior claw of male somewhat sharp anteriorly.
4. Median lobe without distinct protuberance apically.	4. Median lobe with distinct protuberance apically.

lateral stria; anterior coxae with spines that are almost as strong as those on prosternal and mesosternal elevations; thickened anterior claw of the male without an apical tooth; median lobe of male genitalia without distinct apical protuberance, and relatively large sized. These characteristics indicate that these specimens belong to *S. discolor* (Table 1).

Sphaeridium discolor D'ORCHYMONT, 1933

[Japanese name: Tumaki-hababiro-gamushi]

(Fig. 1)

Sphaeridium discolor D'ORCHYMONT, 1933, 298 [India, Tamil Nadu, Coonoor].

Sphaeridium discolor ab. *seminiger* MOUCHAMPS, 1958, 257.

Sphaeridium dimidiatum: NAKANE, 1954, in NAKANE *et al.*, 1954, 25, 26 [misidentification: Tokara-takara-jima]; 1963, 64; 1970, 26. — SATÔ, 1960, 21; 1985, 211. — HANSEN, 1999, 313.

Materials examined. JAPAN (Nansei Is.). [Okinawa-ken]: 2 males, 6 females, Hirakubo-saki, Ishigaki-jima, 16–IX–1993, M. ÔHARA; 5 males, Shirahama-rindô, Iriomote-jima, 3–IX–1993, M. ÔHARA; 2 males, 4 females, Uehara, Iriomote-jima, 20–XI–1983, T. MORIYAMA; 1 male, Iriomote-jima, 6–IV–1968, I. IWATA; 1 male, 2 females, Iriomote-jima, 13 to 16–VII–1974, H. HAYAKAWA. [Kagoshima-ken]: 2 males, 4 females, Amami-Ôshima, 20–VII–1964, M. NAGAI *et al.*; 1 male, 1 female, Asani, Amami, 18–VI–1969, T. SHIRÔZU; 6 males, 4 females, Takara-jima, Tokara Is., 30–V–1953, T. NAKANE. CHINA. [Taiwan]: 7 males, 7 females, Koupi, Hsinhua, Tainan County, 8–XI–1976, M. KIUCHI; 3 males, 2 females, Taipei City, 14–X–1976, M. KIUCHI; 1 female, Jui-sui, Hualien County, 15–XI–1976, M. KIUCHI; 2 females, Sizhongchi, Pingtung County, 11–V–1986, M. ÔHARA; 2 males, Songkang, Nantou County, 14–IV–1986, M. ÔHARA; 1 female, Puli, Nantou County, 8–X–1976, M. KIUCHI; 1 male, 1 female, Liugui, 30–IV–1982, M. ÔHARA; 1 female, Lan-yu Is. (Orchid Is.), 18 to 22–IV–1986, M. ÔHARA. INDONESIA. [Flores Island]: 6 males, 4 females, 08°39'64"–08°47'88"S 121°19'49"–121°23'90"E, Desa Labolewa, Kecamatan Assesa, Kabupaten Ngada, Flores, Propinsi Nusa Tenggara Timur (NTT), 25–I–2003, M.

ÔHARA. [Sumba Island]: 1 male, 09°56'16"S 120°38'50"E, Desa Watuhadang, Kecamatan Umalulu, Kabupaten Sumba timur, Propinsi Nusa Tenggara Timur (NTT), 29-I-2003, M. ÔHARA; 1 male, 09°40'55"S 120°12'19"E, Kecamatan Kambajawa, Kabupaten Kola Waingapn, Sumba timur, Propinsi Nusa Tenggara Timur (NTT), 30-I-2003, M. ÔHARA. [Timor Island]: 1 female, 09°58'62"S 124°01'04"E, Kelurahan Takari, Kecamatan Takani, Kabupaten Kupan, Propinsi Nusa Tenggara Timur (NTT), West Timor, 1-II-2003, M. ÔHARA.

Redescription. Length 6.0–7.2 mm, width 3.0–3.1 mm. Moderately convex. Black, lateral margins of pronotum reddish yellow; elytra with a large yellowish apical spot which laterally continues to 3/5 of elytra anteriorly; epipleura and pseudepipleura reddish yellow; maxillary palpi with pseudobasal segment yellow or yellowish dark, 3rd segment and basal part of apical segment black or dark brown, apex of last segment light-colored; antenna piceous with black club; ventral surface black, ventrites with narrowly yellow margins posteriorly; legs reddish brown with large black spots on femora, sometimes wholly black. Labrum large and well sclerotized, anterior margin with a fringe of setae, broadly truncate. Head with very fine and dense punctures, without microsculpture among punctures and systematic punctures; not abruptly narrowed in front of eyes; clypeus forming a shelf above antennal bases, branches of fronto-clypeal suture becoming trace of glabrous lines, no trace of stem. Eyes small, strongly emarginate anteriorly, interocular space about 6× as wide as an eye. Antennae 9-segmented, 1st segment almost as long as the club, club compact; maxillary palpi less than half of width of head, 2nd segment swollen apically, apical segment symmetrical, somewhat shorter than penultimate. Mentum 1.5× as wide as long, sparsely impressed with small punctures, interstice with microsculpture, emarginate anteriorly. Pronotum 2.1× as wide as long, with the same punctures as on head, interstice without microsculpture, with a longitudinal glabrous line on median portion posterolaterally; lateral margin moderately convex medially, truncate posteriorly; anterior angle round; lateral marginal stria continuing along anterior and posterior margins, posterior margin convex posteriorly. Scutellum elongate, length/width ratio 2.3; somewhat elliptic, rounded apically; closely punctate, interstices smooth. Elytra relatively short, length/width ratio 2.6; apex of elytron shortly rounded, with same punctures as on pronotum, interstice with indistinct microsculpture and finely scratched on disc, longitudinal rows of larger punctures unclear, sutural stria reaching half of elytra anteriorly, lateral marginal and sutural striae confluent, lateral bead not swollen before apex in female; epipleura oblique, not reaching end of posterior coxae; pseudepipleura oblique, somewhat narrower than epipleura anteriorly. Ventral surface with dense pubescence except middle of metasternum. Prosternum without distinct antennal grooves, gradually elevated and with dense golden long setae medially. Mesosternum elevated posteriorly to form a longitudinal, blunt bulge, which is densely covered with spines posteriorly; a blunt process projecting between mesocoxae. Metasternum with weakly impressed longitudinal groove in front of scanty transverse sulcus medially; elevated median portion glabrous, with very fine transverse microsculpture, some very sparse punctures present

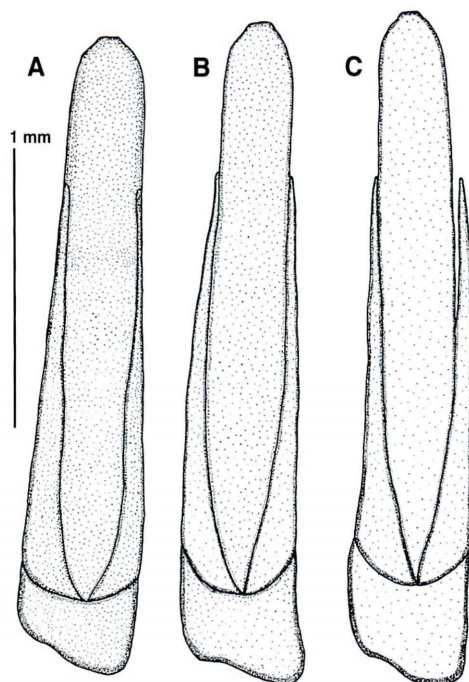


Fig. 1. Aedeagus of male genitalia of *Sphaeridium discolor*: — A: From Flores Island, Indonesia. B: From Koupi, Xinhua (=Hsinhua), Taiwan. C: From Iriomote-jima, Nansei Islands, Japan.

in front of transverse sulcus and no puncture on posterior part; posterior margin slightly extending in posterior direction, fringed with short setae; two long dents projecting between hind coxae. Posterior margins of abdominal sternites with fringe of golden hairs. Apical margin of 5th sternite round, not extended posteriorly. Fore coxa with strong spines and sharply projected interiorly; trochanter with a fringe of setae underneath. Anterior femora with dense pubescence; mesofemora with sparsely large punctures; posterior femora with moderately sized punctures that are denser than those on mesofemora, interstice with distinct microsculpture. Middle tibiae each with one or two spines and hind tibiae each with two or three spines on their inferior side. First segment of hind tarsi somewhat longer than the following three segments together.

Male. Elytra with somewhat more distinct microsculpture than those of female; anterior claw strongly dilated and strongly curved, without dent apically. Genitalia: median lobe a little bisinuate in lateral view, without distinct protuberance; paramere reaching 2/3 of median lobe.

Distribution. India, Philippines, Indonesia, Southern China (including Taiwan), Japan (Nansei Islands), Australia (Northern Territory). New to Japan and Indonesia.

Discussion

D'ORCHYMONT (1913) reported *S. dimidiatum* after examining 5 males and 13 females collected from Tainan and Anping of Taiwan. In 1933, he described a new species, *S. discolor*, and designated two males and six females, which have been identified as *S. dimidiatum* by him in 1913, as the paratypes. Unfortunately, he did not explain to which species belong the other specimens. He (1933), however, treated *S. dimidiatum* in his 1913 paper under the name of *S. discolor* as a case of misidentification. HANSEN (1999) did not record *S. dimidiatum* from Taiwan; he recorded it from Japan (1999) after NAKANE (1970).

From the papers of D'ORCHYMONT (1933) we can infer that all the specimens of "*Sphaeridium dimidiatum*" reported by D'ORCHYMONT in 1913 belonged to *S. discolor*. We can also infer that this species is very common in Taiwan, based on the specimens we checked and D'ORCHYMONT's report. NAKANE (1954, 1963, 1970) and SATÔ (1960, 1985) reported *S. dimidiatum* from the Nansei Islands of Japan, and they reported that this species also occurred in Taiwan. *Sphaeridium dimidiatum* is known to occur in India, Indonesia (Java), Sri Lanka, and Thailand. Previous records that *S. dimidiatum* occurs in Taiwan are doubtful. After checking the specimens identified by NAKANE from the Nansei Islands of Japan and Taiwan, we are sure that these specimens belong to *S. discolor*.

Key to the Species of the Genus *Sphaeridium* in Japan

1. Size 4–4.7 mm. Pronotum moderately narrowed anteriorly; the lateral margin not truncate posteriorly; prosternum tectiform; metasternum with dense punctures and longitudinal impression behind sulcus; hind femora usually with one spine on ventral surface; apical spot of elytra extending to base laterally. *S. quinquemaculatum*
- Size 5.2–7.5 mm. Pronotum strongly narrowed anteriorly, if pronotum is moderately narrowed anteriorly, the lateral margin truncate posteriorly; prosternum gradually elevated medially, not tectiform; metasternum without punctures and impression behind sulcus; hind femora usually with two spines on ventral surface; apical spot of elytra at most reaching basal three-fifths. 2
2. Pronotum moderately narrowed anteriorly, lateral margin truncate posteriorly; scutellum elliptic; elytra without reddish subhumeral spot; yellowish apical spot of elytra continuous to each other, not divided by a narrow dark sutural stripe. Lateral sides of median lobe of male genitalia almost parallel from base to apex. *S. discolor*
- Pronotum strongly narrowed anteriorly, posterior angle of pronotum obtuse; scutellum triangular; elytra with a distinct, well defined reddish subhumeral spot; yellowish spot of elytra divided by a narrow dark sutural stripe. Median lobe of male genitalia distinctly narrowed apically. *S. scarabaeoides*

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要 約

賈 鳳龍・大原昌宏：日本およびインドネシアから初めて正式に記録されるツマキハバビロガムシ。——日本の南西諸島のトカラ宝島以南に分布するとされていた *Sphaeridium dimidiatum* は、前転節の刺などの形態から *S. discolor* と同定される。日本（南西諸島）、台湾、インドネシアの標本を検討し、日本とインドネシアから *S. discolor* を初記録した。また従来 *S. dimidiatum* の和名であった「ツマキハバビロガムシ」を、*S. discolor* の和名に当てる。

References

- HANSEN, M., 1999. World Catalogue of Insects. Vol. 2. Hydrophiloidea (s. str.) (Coleoptera). 415 pp. Apollo Books, Stenstrup.
- MOUCHAMPS, R., 1958. Remarques concernant quelques Coléoptères Hydrophilides (15^{me} étude). *Bull. Annls. Soc. r. Ent. Belg.*, **94**: 249–260.
- NAKAKE, T., 1963. Hydrophilidae. In NAKANE T., K. OHBAYASHI, S. NOMURA & Y. KUROSAWA (eds.), *Iconogr. Ins. Japon. Col. nat. ed.*, **2** [Coleoptera]: 63–66. Hokuryukan, Tokyo. (In Japanese, with Latin book title.)
- 1970. A checklist of Hydrophiloidea of Japan (Coleoptera). *Nat. & Ins., Tokyo*, **5**(5): 25–29. (In Japanese.)
- S. MIYAMAOTO & S.-I. UENO, 1954. A collecting trip to the Tokara Group of the Ryukyu Islands. *Shin-Konchû, Tokyo*, **7**(1): 24–29, 4 pls. (In Japanese.)
- D'ORCHYMONT, A., 1913. H. SAUTER's Formosa-Ausbeute. Hydrophilidae (Col.). *Supplta. ent., Berlin*, **2**: 1–18, pl. 1.
- 1933. Contribution à l'étude des Palpicornia VIII. *Bull. Annls. Soc. ent. Belg.*, **73**: 271–314, pl. 5.
- SATÔ, M., 1960. Notes on the tribe Sphaeridiini of Japan (Coleoptera: Hydrophilidae). *Ageha, Matsuyama*, (8): 20–21. (In Japanese.)
- 1985. Hydrophilidae. In UENO S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, **2**: 208–217 [incl. pls. 38–39]. Hoikusha, Osaka. (In Japanese, with English book title.)